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X
LABORATORIES
and
FUNCTIONS
of the

SOUTHERN UTILIZATION RESEARCH & DEVELOPMENT DIVISION X

1100 Robert E. Lee Blvd.
P. O. Box 19687
5a
New Orleans, Louisiana 70119
Telephone 282-1441

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Agricultural Research Service
U. S. DEPARTMENT OF AGRICULTURE

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UTILIZATION RESEARCH

Agricultural utilization research is an organized effort through science and technology to increase present uses and to discover and develop varied new uses for farm products.

Our farmers need new markets and strengthened demand for their production. This is particularly true of those commodities now in surplus. At the same time the Nation needs the new and better products that science can create from agricultural materials.

To this end the Southern Utilization Research and Development Division, a part of the U. S. Department of Agriculture's Agricultural Research Service, conducts research on cotton, cottonseed, tung fruit, peanuts, rice, sugarcane, pine gum, citrus fruits, sweetpotatoes, cucumbers, and other vegetables.

Headquarters of the Southern Division are located at the Southern Regional Research Laboratory,* New Orleans, Louisiana. The Division also has personnel and laboratory facilities at Winter Haven, and Olustee, Florida; Weslaco, Texas; Raleigh, North Carolina; Houma, Louisiana; and Natick, Massachusetts.

Offices of the Administrator of the Agricultural Research Service, Dr. Byron T. Shaw, and the Deputy Administrator for Nutrition, Consumer and Industrial Use Research, Dr. George W. Irving, Jr., are in Washington, D. C.

This booklet includes a directory of staff members of the Office of the Director, Chiefs of the 11 research laboratories, and Heads of Investigations within the laboratories. The research function of each group is described briefly.



LOCATION OF DIVISION HEADQUARTERS

* The Laboratory is located north of City Park near Lake Pontchartrain, about 7 miles from the business center of New Orleans and may be reached by bus.

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December 1963 //

Dr. C. H. Fisher, Director
Room 2004

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	Room
Dr. G. E. Goheen Assistant Director, Program Operations	2002
Mr. R. M. Persell Assistant Director, Program Appraisal	2030
Mr. C. L. Hoffpauir Assistant Director, Program Development	3010
Dr. B. H. Wojcik Assistant Director, Industrial Development	1032
Mr. G. P. Clasen Assistant to Director for Management	2010
Dr. E. F. Pollard Assistant to the Director	2034
Mr. M. F. Stansbury Assistant to the Director	2032
Mr. B. M. Kopacz Assistant to the Director	3010
Mr. L. W. Mazzeno, Jr. Assistant to the Director	1032
Mr. J. P. Hughes Technical Assistant	3010
Mr. O. J. McMillan, Jr. Technical Assistant	2034
Mr. F. C. Pack Patent Adviser	2036
Mr. R. A. Hetherwick Mechanical Superintendent	1015
Mrs. D. B. Skau Librarian	1004
* * * *	
Mr. W. Norbert Berard Cotton Technologist stationed at U. S. Army Quartermaster Research and Development Command, Natick, Mass.	
* * * *	
Mr. O. C. Hester Economic Research Service	1030
Mr. E. F. Schultz, Jr. ARS Biometrical Services	3019
Mr. V. R. Bourdette ARS Information Division	2032

RESEARCH LABORATORIES

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PLANT FIBERS
PIONEERING RESEARCH LABORATORY

Room 3126

Dr. C. M. Conrad, Chief Research Chemist

This Laboratory conducts pioneering research in scientific fields involving plant fibers. It emphasizes fundamental studies of supermolecular structural properties of plant fibers, such as crystal modification of the cellulose, crystallinity, crystallite size, orientation of crystallites with respect to fiber axis, accessibility, mean degree of polymerization, polymolecularity, gross morphology, cellulose complexes, and nature and degree of chemical substitution of chemically modified celluloses. These structural properties are studied with regard to their relation to or influence on such mechanical properties of fibers as tenacity, elongation, stiffness, toughness, elasticity and resilience and their related quantities.

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SEED PROTEIN
PIONEERING RESEARCH LABORATORY

Room 2121

Dr. A. M. Altschul, Chief Research Chemist

This Laboratory conducts pioneering research in scientific fields involving seed proteins and associated materials. Seed proteins include the enzymes of the seed; they are involved in growth and metabolism; they are a source of nutrients for the growing plant; and they are important foodstuffs for man and animals. Research is conducted on the isolation of pure seed proteins; the chemical and physical properties of the pure proteins are studied as are their structure and their properties as enzymes and biologically active materials. Proteins as they exist in the seed and as they are isolated in pure form are often associated with nonprotein materials. The nature of the materials with which the proteins may be associated is investigated, as well as the nature of their association with the proteins and effects of such association on the biological properties of the protein.

COTTON FINISHES LABORATORY

Mr. W. A. Reeves, Chief

Room 3017

WASH-WEAR INVESTIGATIONS

Dr. J. D. Reid, Head Room 3125-S

Development of new finishes for imparting ideal wash-wear properties to cotton fabrics and garments.

Utilization of results of fundamental investigations in evolving new organic additive finishes for production of improved wearing apparel.

Application to cotton textiles of compounds which react with cellulose or with themselves to form crosslinkage and/or polymers which improve the physical and chemical properties of the cotton, imparting crease resistance or other properties which extend its usefulness in the wash-wear field.

Improvement in physical properties, such as tear resistance, breaking strength and abrasion resistance, or cotton and modified cotton textiles by application of additive organic surface finishes.

Mechanism of crease-resistance phenomena.

WEATHER RESISTANCE INVESTIGATIONS

Mr. A. S. Cooper, Jr., Head Room 0130

Protective effects of inorganic and organic compounds and pigments on outdoor fabrics, such as awnings, tents and tarpaulins.

Development of new products of cotton textiles which have such properties as improved light, heat, and rot resistance.

Mechanisms of prevention of degradation of cotton textiles due to sunlight, mildew and fungi.

Development of new, improved, and more efficient processes for preparation of chemically modified cottons for evaluation tests necessary for commercialization of the products.

SPECIAL FINISHES INVESTIGATIONS

Mr. G. L. Drake, Jr., Head Room 1101-S

Development of new cotton textile products which have such properties as improved strength and toughness, and heat, soil, water and oil resistance.

Development, on a laboratory scale, of processes designed to improve the quality of cotton by chemically modifying the cotton cellulose.

"In situ" polymerization of substances in cotton textiles to enhance properties such as hydrophobic, oleophobic and elastic properties of cotton.

Improvement of luster and dyeability of cotton through studies involving practices such as mercerization, scouring, bleaching, etc.

**COTTON CHEMICAL REACTIONS
LABORATORY**

Dr. J. D. Guthrie, Chief

Room 3013

EXPLORATORY INVESTIGATIONS

Dr. J. D. Guthrie, Acting Head Room 1118-S

Organic chemistry of cotton cellulose and the reaction of chemical compounds with cotton fibers.

Synthesis of selected organic compounds for reaction with cotton.

Utilization of the scientific principles achieved above in inventing new processes for improving cotton textiles.

Discovery of new monomers and polymers that impart desired properties to cotton textiles.

ORGANO-PHYSICAL INVESTIGATIONS

Dr. R. R. Benerito, Head Room 1106-S

Physical-chemical properties of cotton cellulose and its reactions.

Development of new methods or approaches for measurement of physical-chemical properties of cotton and derived products involving application of physical-chemical procedures and techniques, especially those involving reaction catalysis and reaction mechanisms of fiber modifications, and physical chemistry of reagent systems.

Energy properties of fiber surfaces, solid state phenomena of modified cotton fibers, photochemistry of fibers and protective treatments.

Development of basic physical-chemical principles and data to further research and utilization of cotton products.

RADIOCHEMISTRY INVESTIGATIONS

Mr. J. C. Arthur, Jr., Head Room 3113-S

Research to obtain basic information on the changes induced in cotton products by exposure to high energy radiation.

Research on the development of new techniques, involving high energy irradiation, for the chemical or physical modification of cotton and cotton derivatives to provide new and improved cotton textiles. Research involving radioisotope and tracer methods to develop basic information on the nature and mechanism of the reactions which occur in the chemical modification of cotton to produce products of improved quality and properties.

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CROSSLINK STRUCTURES INVESTIGATIONS

Dr. S. P. Rowland, Head Room 1117-S

Elucidation of the nature, number and positions of substituents in crosslinked cotton celluloses, and in other chemically modified cotton celluloses.

Studies of various types of bonds between the cellulose chains.

Preparation of organic compounds and development of research methods, as required in the work.

COTTON MECHANICAL LABORATORY

Mr. R. J. Cheatham, Chief

Room 3030

FABRIC DESIGN INVESTIGATIONS

Mr. J. J. Brown, Head Room 2202

Determination of the physical and other requirements of selected end uses for cotton.

Design and development of new and improved cotton fabrics from untreated and chemically modified cottons to meet the requirements of selected end uses.

Determination of principles of fabric geometry and relation of these to fabric properties and performance, and mechanism of fabric phenomena involving yarn movements.

PROCESSING EFFICIENCY INVESTIGATIONS

Mr. L. A. Fiori, Head Room 3028

Determination of the effect of physical properties of cotton fibers on yarn and fabric properties and processing performance.

Determination of effect of yarn and fabric structures on fabric properties and their serviceability.

Development of engineering concepts for functionally relating cotton fiber properties to yarn and fabric structures to obtain utilization of fiber properties.

Development of basic information on processing principles from which to formulate procedures for successfully processing natural and chemically modified cottons.

MACHINERY DEVELOPMENT INVESTIGATIONS
Mr. R. A. Rusca, Head _____ Room 3032

Extension and application of engineering knowledge to the design and development of new and improved equipment for processing cotton into lower cost higher quality consumer products.

Development of experimental machines, the development of pilot scale machines for evaluation under commercial conditions, and the subsequent plans required for scaling up successful units into practical, commercial size equipment.

Development of operating data and techniques needed to enable new equipment to be incorporated into established commercial operations.

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**COTTON PHYSICAL PROPERTIES
LABORATORY**

Mr. R. T. O'Connor, Chief
Room 3002

FIBER PHYSICS INVESTIGATIONS
Mr. J. N. Grant, Head _____ Room 3134

Development of new concepts and methods for measuring the physical properties of cotton fibers. Evaluation of new testing instruments and techniques as means of predicting the quality characteristics of cottons.

Structural arrangements of cellulose within the fibers and their relationships to the mechanical or other physical properties of the fibers and to the properties of the yarns or fabrics.

MICROSCOPY INVESTIGATIONS

Miss M. L. Rollins, Head Room 3122-S

Development of basic microscopical information on morphology and fine structure of cotton and related cellulose fibers for interpretation of the effects of physical and chemical treatments on fiber properties.

Evaluation by techniques of light and electron microscopy of fiber damage due to such agencies as microbial degradation, physical wear, chemical attack, oxidation, ultraviolet or atomic radiation.

Microscopic evaluation of cotton fabrics chemically modified by resin-coating or impregnation, by chemical substitution and by crosslinking reactions in the production of fabrics with such improved properties as flame-resistance, water-resistance, crease-proofing, soil-proofing and wash-wear characteristics.

Coordinated research consultation and cooperation with other research groups in the Division, requiring microscopical and electron microscopical observations and photomicrographs in connection with their specific areas of research.

TEXTILE TESTING INVESTIGATIONS

Mr. A. R. Markezich, Acting Head Room 3200

Research on the evaluation and comparison of new cotton textile products to supply information basic to the development of such products.

Research on the adaptation, modification or development of instruments and methodology for evaluating the physical properties of new and improved products derived from cotton.

Coordinated research consultation and cooperation with other research groups in the Division on special problems involving the physical evaluation of textile, plastic, and related products.

SPECTROSCOPY INVESTIGATIONS

Mr. V. W. Tripp, Head Room 1130-S

Research to obtain basic information on the nature and structure of the constituents of products derived from cotton and other agricultural commodities of the South by application of highly specialized instrumental methods of analysis such as absorption and emission spectroscopy in the ultra-violet, visible and infrared regions.

Research on the development of improved instrumental methods and instruments for the rapid and precise analysis required to further utilization research on cotton.

Research involving the application of highly specialized instrumental methods to develop basic information on the nature and mechanism of reactions involved in the production of new and improved products from cottons.

Coordinated research consultation and cooperation with other research groups in the Division where special problems in spectroscopy arise.

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FOOD CROPS LABORATORY

Dr. V. H. McFarlane, Chief

Room 3006

RICE AND SWEETPOTATO INVESTIGATIONS

Dr. H. J. Deobald, Head Room 2128-S

Chemical composition, physical structure, and chemical changes occurring in raw and processed rice and sweetpotato products.

Chemical and physical nature of constituents such as starch, protein and pectin, and the determination of the quantitative effects on these constituents exerted by such factors as variety, soil-type, climate, cultural practices, aging, temperature of storage, and specific chemical and physical treatment.

Development of new and improved processing methods and products to provide higher nutritional value, longer shelf life, increased acceptability, and ease of preparation.

Development of new or improved methods for utilizing wastes and byproducts.

SUGARCANE INVESTIGATIONS

Dr. L. F. Martin, Head Room 2120

Identification of nonsugar constituents of sugarcane and juice and determination of the composition of juices to establish relationships between concentration of organic nonsugars and the efficiency of clarification, the crystallization of sugar, and the quality of raw and refined sugar.

Evaluation of qualities of sugarcane juices of different nonsugar compositions for sugar production through the processing of different kinds of cane on a pilot-plant scale.

Development of improved methods of clarification and purification, and of more efficient processes for the production and refining of cane sugar.

Evaluation of different grades of sugar for use in individual food products, such as confectionery and bakery goods, to increase utilization of cane sugar together with other agricultural products.

Development of processes for the recovery and utilization of byproducts from molasses and processing wastes, and for nonfood or feed utilization of sugar and molasses.

SOUTH-CENTRAL FRUIT AND VEGETABLE INVESTIGATIONS

Dr. F. P. Griffiths, Head

Weslaco, Texas (Mail Address: Dr. F. P. Griffiths,
In Charge, U. S. Fruit & Vegetable Products
Laboratory, P. O. Box 388, Weslaco, Texas)

Chemical composition and physical structure of Southern-grown fruits and vegetables.

Processing characteristics and technology of peas, avocados, green beans, carrots, tomatoes, and other fruits and vegetables in commercial production or of potential value to southern agriculture.

Effects of maturity, soil-type, root-stock, variety, and cultural practices on the processing characteristics of colored grapefruit.

Development of new or improved products from colored grapefruit, including methods of preserving and debittering colored grapefruit.

Chemistry of the pigments of colored grapefruit as related to processing characteristics of the fruit and processed product quality.

FOOD FERMENTATION INVESTIGATIONS
Dr. J. L. Etchells, Head

Raleigh, N. C. (Mail address: Dr. J. L. Etchells,
In Charge, U. S. Food Fermentation Laboratory,
P. O. Box 5578, Raleigh, North Carolina)

Chemistry and microbiology of vegetable brine-curing processes with special emphasis on cucumbers.

Evaluation of cucumber varieties to determine the chemical and physical characteristics which identify good processing varieties.

Cause and control of enzymatic and nonenzymatic types of brine stock and pickle deterioration.

Improvement of processing procedures for fresh-pack and cured stock pickle products to reduce costs and processing times and to increase stability and improve firmness, color and other desirable characteristics.

Improvement of processing plant sanitation and the development of plant control methods.

Development of new or improved methods for utilizing waste and byproducts, including research on micro-organisms involved in fermentation to determine other food or industrial adaptations.

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**FRUIT AND VEGETABLE PRODUCTS
LABORATORY**

Dr. M. K. Veldhuis, Chief

Mail address: Dr. M. K. Veldhuis, Chief, U. S. Fruit and Vegetable Products Laboratory, 600 Avenue S, N. W., Winter Haven, Florida

CITRUS COMPOSITION INVESTIGATIONS
Winter Haven, Florida

Dr. M. K. Veldhuis, Acting Head

Chemical, biochemical and physical-chemical nature of the constituents of citrus fruit, including lipids, flavonoids, carotenoids, organic acids, protein, amino acids, mineral constituents, pectins, hemicelluloses, and other major groups of chemical constituents; and mechanism of the reactions which affect the natural and desirable characteristics of citrus fruit in processed products.

Isolation, identification and characterization of flavor components and precursors in essential citrus oils; and other compounds associated with flavor quality characteristics and general processed product stability.

CITRUS PROCESSING INVESTIGATIONS

Winter Haven, Florida

Dr. M. K. Veldhuis, Acting Head

Development of new and improved chilled, canned, concentrated, frozen and dehydrated products; and development of improved processing methods to reduce cost, shorten processing time, and improve quality of products—including the development and evaluation of dehydration processes such as foam-mat, spray, vacuum, and freeze drying for the economical manufacture of citrus powder.

Analysis, evaluation, and development of new or improved methods of utilizing citrus byproducts and wastes.

Microbiology and enzymology of citrus processing and products and the development of control procedures.

Development of new and improved industrial products from limonene, naringin, and other chemical constituents of citrus fruit and wastes.

VEGETABLE AND SUBTROPICAL FRUIT INVESTIGATIONS

Winter Haven, Florida

Dr. M. K. Veldhuis, Acting Head

Isolation, identification and characterization of the organic constituents of Southeastern grown vegetables and subtropical fruits, particularly those components which affect the color, flavor, aroma, and texture of the raw and processed products.

Development of new and improved methods for processing vegetables and subtropical fruits in order to expand food, feed and industrial uses of these commodities.

Influence of variety, cultural practices, environment and processing treatments on the processing characteristics of vegetables and subtropical fruit products.

Development of new and improved products through application of basic information on constituents—carbohydrates, proteins and other nitrogenous substances, lipids, pigments, flavor components and enzymes.

OILSEED CROPS LABORATORY

Dr. L. A. Goldblatt, Chief

Room 3004

INDUSTRIAL OIL INVESTIGATIONS

Mr. F. G. Dollear, Head Room 2100-S

Composition, properties, and characteristics of industrial oils from southern-grown crops and their constituents, derivatives, and derived end-use products.

Development of new or improved industrial oil products including surface coatings and plasticizers.

Development of processes for the production of new or improved industrial oil products including industrial chemicals and intermediates as well as products obtained by polymerization, chemical modification, physical methods, and other means.

EDIBLE OILS INVESTIGATIONS

Mr. R. O. Feuge, Head Room 2109

Composition, properties and characteristics of edible oils from southern-grown crops and their constituents, derivatives, and derived end-use products.

Development of new or improved products from edible oils including new types of edible fats and oils obtainable by chemical modification.

Development of processes for the production of new or improved edible oil products including improved existing methods of refining, bleaching, hydrogenation, and fractionation, as well as processes for making new types of products by polymerization, chemical modification, physical methods, and other means.

PHYSICAL CHEMICAL INVESTIGATIONS

Dr. E. L. Skau, Head Room 1129-S

Special physical-chemical properties of oilseeds, vegetable oils, and oilseed meals from southern-grown crops, their constituents and derived or manufactured products.

Development of new methods or approaches for measurement of physical-chemical properties of oilseeds, their constituents, and derived products involving application of physical-chemical procedures and techniques of all types, but more especially those for measurement of colloidal and thermodynamic properties, solubilities, phase relations, electrometric and kinetic properties, and purification and characterization of organic compounds.

Development of basic physical-chemical principles and data to further research and utilization of oilseed products.

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SEED AND MEAL INVESTIGATIONS

Dr. V. L. Frampton, Head Room 3114

Composition, properties, and characteristics of oil-seed meals from southern-grown crops and their constituents and derived products.

Development of new or improved industrial products from oilseed meals or their constituents, and processes for their production.

Development of new and improved methods of processing oil-bearing crops and of treating the meals to improve their nutritive value and utility for feeding nonruminants through preservation of protein quality, removal or inactivation of anti-nutritional factors, and at the same time improve oil quality.

NAVAL STORES LABORATORY

Mr. R. V. Lawrence, Chief

Mail address: Mr. R. V. Lawrence, Chief, Naval Stores Laboratory, Olustee, Florida

PINE GUM INVESTIGATIONS

Olustee, Florida

Mr. R. V. Lawrence, Acting Head

Composition, properties and characteristics of pine gum and its components, derivatives, and derived products.

Development of new and improved industrial products and processes for their production directly from pine gum, including the isolation of components and the determination of their reactions and reactivity in the development of new chemicals and new products having large-scale industrial application.

ROSIN INVESTIGATIONS

Olustee, Florida

Dr. G. W. Hedrick, Head

Properties and characteristics of rosin from pine gum and its derivatives and derived end-use products.

Development of new and improved industrial products from rosin, such as those used in the manufacture of surface coatings, plasticizers, plastics, and synthetic rosins.

Pilot-plant development of processes for the production of products from gum naval stores, and evaluation of products for industrial use.

TURPENTINE INVESTIGATIONS

Olustee, Florida

Mr. G. S. Fisher, Head

Composition, properties, and characteristics of gum turpentine and its constituent terpenes, derivatives, and derived end-use products.

Development of new or improved industrial products and processes for their production including industrial chemicals and intermediates useful in the manufacture of such products as plasticizers, insecticides, fungicides, and other industrial products involving study of chemical reactions of terpenes including isomerization, polymerization, oxidation, addition to the olefinic bonds, and substitution of functional groups, especially in positions adjacent to the olefinic bonds.

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ENGINEERING AND DEVELOPMENT LABORATORY

Mr. H. L. E. Vix, Chief

Room 1034

FOOD PRODUCTS INVESTIGATIONS

Mr. J. J. Spadaro, Head Room 1213

Development and evaluation on a pilot-plant scale, of new and improved products from sweetpotatoes, rice, and other food products.

The determination of methods and equipment best suited to the requirements of the new products concerned.

The planning and operation of integrated pilot plants to obtain engineering data for estimation of commercial cost.

Planning for semi-works and larger scale processing procedures and equipment, and such data as is desirable to aid industry in the commercialization of SU developments in the area concerned.

COTTON PRODUCTS INVESTIGATIONS

Mr. H. L. E. Vix, Acting Head Room 2213

Development and evaluation, on a pilot-plant scale, of chemical engineering aspects of new and improved products derived from cotton lint.

The determination of methods and equipment best suited to the requirements of the new products concerned.

The planning and operation of integrated pilot plants to obtain engineering data for estimation of commercial cost.

Planning for semi-works and larger scale processing procedures and equipment, and such data as is desirable to aid industry in the commercialization of SU developments in the area concerned.

OILSEED PRODUCTS INVESTIGATIONS

Mr. E. A. Gastrock, Head Room 0213

The acquisition of chemical engineering information required in the development and evaluation of methods for processing oilseeds such as cottonseed, tung, and new crops, with emphasis on methods previously studied on a laboratory scale.

Bench scale and pilot-plant studies to prepare sizeable samples of oilseed products for further research or for test evaluation, and to determine optimum practical processing conditions, raw materials, equipment requirements, product quality and yields, data for cost analysis, and other factors as required for the development of new and improved processes for oilseeds.

The basic engineering principles and phenomena affecting various unit operations as required for their successful integration into oilseed processing.

Planning for semi-works and larger scale processing procedures and equipment, and such data as is desirable to aid industry in the commercialization of SU developments in the area concerned.

COST AND DESIGN INVESTIGATIONS

Mr. K. M. Decossas, Head Room 1026

Preparation of preliminary cost estimates to determine the advisability of pilot-plant evaluation of proposed processes.

Determination of economic feasibility of new processes by preparing comprehensive commercial production and distribution cost estimates of new products made from plant commodities.

Design and assembly of integrated pilot plants for obtaining engineering data for cost estimates.

Development of information for use in advising industry relative to the design of commercial units for processes developed by the laboratory.

Preparation of detailed engineering specifications for the purchase of complex pilot plant equipment.

OTHER UTILIZATION RESEARCH DIVISIONS

Utilization research on farm commodities is conducted also by the other three Regional Utilization Research and Development Divisions of the Agricultural Research Service, U. S. Department of Agriculture. The addresses and fields of research covered are:

Eastern Utilization Research & Development Division

600 East Mermaid Lane
Philadelphia, Pennsylvania 19118

Principal Fields of Research:

Animal products: dairy, meat, fats, and leather; plant products: Eastern fruits and vegetables, tobacco, honey, maple, and new crops; allergen studies.

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Northern Utilization Research & Development Division

1815 North University Street
Peoria, Illinois 61604

Principal Fields of Research:

Cereal grains: corn, wheat, barley, grain sorghum, and oats. Oilseed: soybean, flaxseed, safflower, and erucic acid-containing oilseeds; new crops.

Western Utilization Research & Development Division

800 Buchanan Street
Albany, California 94710

Principal Fields of Research:

Western fruits, nuts, vegetables, and rice; poultry products; forage crops; wheat and barley; wool and mohair; sugar beets; dry beans and peas; castor beans; new crops.

SOUTHERN DIVISION FIELD STATIONS

U. S. Fruit and Vegetable Products Laboratory
600 Avenue S, N. W.
Winter Haven, Florida

U. S. Fruit and Vegetable Products Laboratory
P. O. Box 388
Weslaco, Texas

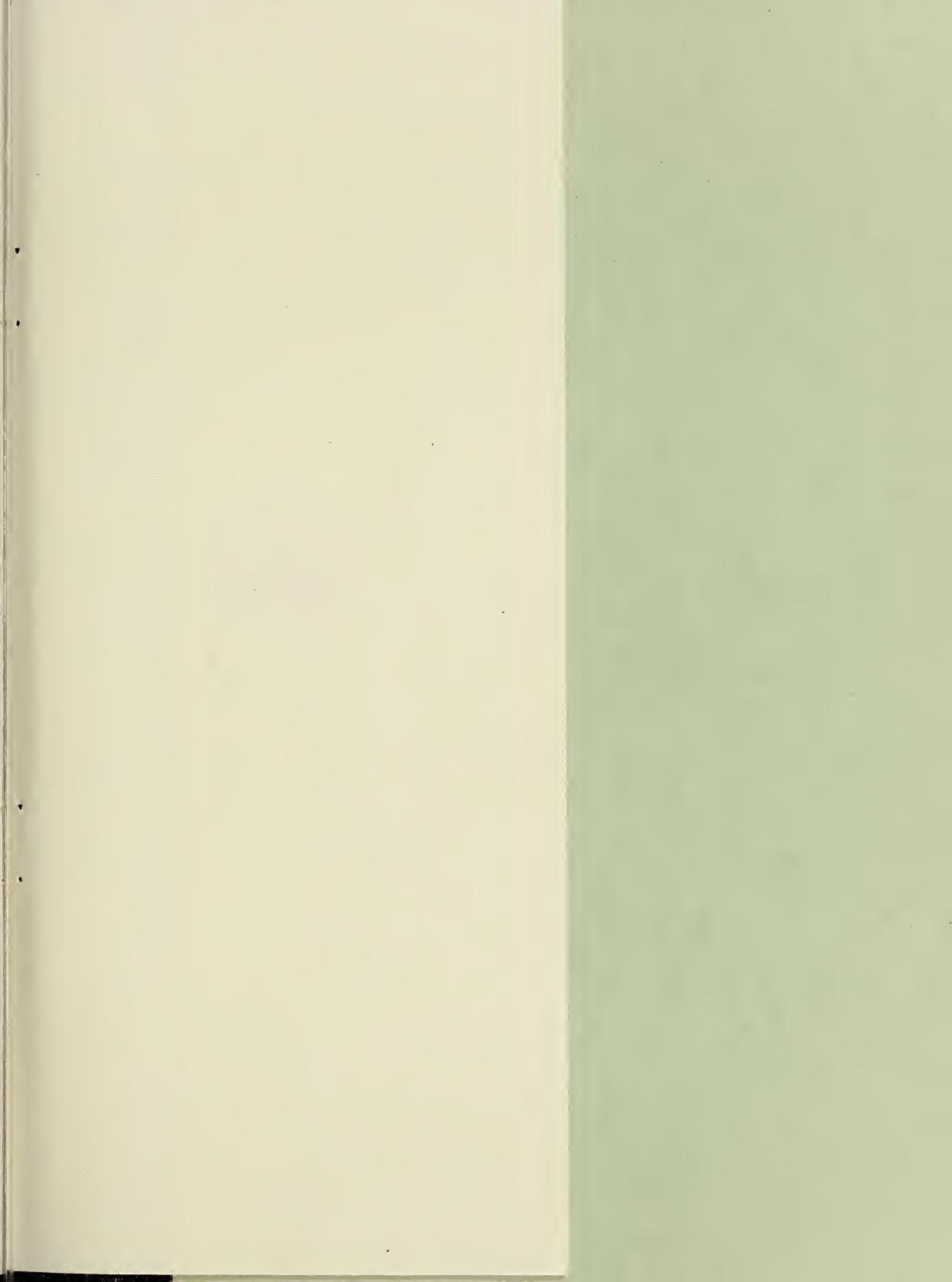
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U. S. Food Fermentation Laboratory
P. O. Box 5578
Raleigh, North Carolina

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